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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,438	02/06/2004	Satoshi Misaka	HITA.0510	5152

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EXAMINER
CONNOLLY, MARK A

ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/772,438	MISAKA ET AL.
	Examiner	Art Unit	
	Mark Connolly	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-8* is/are allowed.

6)☒ Claim(s) *9,13,16 and 17* is/are rejected.

7)☒ Claim(s) *10-12,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some *   c)☐ None of:

         1.☒ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *2/6/2004*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-17 have been presented for examination.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

3.   Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the

enablement requirement. The claim(s) contains subject matter which was not described in the

specification in such a way as to enable one skilled in the art to which it pertains, or with which

it is most nearly connected, to make and/or use the invention. In particular, an "object application

task" has not been defined in the specification. For examination purposes, claim 17 is

interpreted as raising the frequency and voltage if there is a plurality of ready state tasks to be

executed as suggested in paragraph 0022 of the specification.

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

5.   ·Claim 1 recites the limitations "the ready state" and "the former application task" on lines

18-20. There is insufficient antecedent basis for this limitation in the claim. For examination

purposes "the ready state" and "the former application task" has been interpreted as "a ready

state" and "a former application task."

6.   Claim 4 recites the limitation "the preset virtual worst case execution time" on lines 6-7.

There is insufficient antecedent basis for this limitation in the claim. For examination purposes

"the preset virtual worst case execution time" has been interpreted as "a preset virtual worst case

execution time."

7.   Claim 13 recites the limitation "the worst case execution time" on line 7. There is

insufficient antecedent basis for this limitation in the claim. For examination purposes "the

worst case execution time" has been interpreted as "a worst case execution time."

8.   Claim 16 recites the limitation "said ready state watching task" on lines 3-4. There is

insufficient antecedent basis for this limitation in the claim. For examination purposes "said

ready state watching task" has been interpreted as "a ready state watching task."

9.   Claim 17 recites the limitations "the clock frequency" and "the source voltage" on lines

7-8. There is insufficient antecedent basis for this limitation in the claim. For examination

purposes "the clock frequency" and "the source voltage" has been interpreted as "a clock

frequency" and "a source voltage."

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11.   Claims 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by

Matsushima et al [Matsu] US Pat. No. 6000035.

12.   Referring to claim 13, Matsu teaches the system comprising:

a.   managing a worst case execution time in which a task should be completed if the

number of ready state application tasks is less than a predetermined value and managing a

virtual worst case execution time, which is shorter than a worst case execution time, if the

number of ready state application tasks is greater than the predetermined value [col. 6

lines 4-8 and col. 8 lines 58-65].

Although not explicitly taught, processors that are responsible for executing the tasks

process a plurality of instructions which together makeup a given task. Therefore, it is inherent

in order for a processor to execute a particular task, the task must first be broken up into and

presented to the processor as individual instructions to be processed. In addition, by Matsu

reducing a processor frequency if the number of ready state application tasks is below a

predetermined value it should be apparent that the execution time for an instruction would be

greater during the period of reduced frequency in comparison to that when the frequency is not

reduced (i.e. the number of ready state application tasks are greater than the predetermined

value).

13.   Referring to claim 16, Matsu teaches a scheduler within an operating system which

manages the execution of the ready state application tasks [col. 4 lines 45-50 and col. 12 lines

25-26].

14.   Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Mizuyabu et al

[Mizuyabu] US Pat No 7036032.

15.   Referring to claim 17, Shaffer teaches the invention substantially including:

b.   outputting a number of ready state application tasks [col. 4 lines 47-51]. The

instructions in the instruction buffer are interpreted as ready state tasks. Furthermore, in

order to compare the number of instructions with a threshold value, it is obvious that the

value representing the number of instructions must be reported. This is interpreted as

outputting the number of ready state application tasks.

c.   enable the system to increase a clock frequency and voltage if the number of

ready state tasks is above a threshold number and reducing the clock frequency and

voltage if the number of ready state tasks is below a threshold number [col. 4 lines 47-62,

col. 5 lines 24-40 and col. 6 line 64-col. 7 line 1]. It is interpreted that the threshold

number may be set to any value including one representing only a single task.

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

17.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsu as applied

to claims 13 and 16-17 above and further in view of Soga US Pat No 4145735.

18.   Referring to claim 9, Matsu teaches the system comprising:

d.   an information processing system managing a number of ready state application

tasks [col. 4 lines 45-50].

e.   managing a worst case execution time in which a task should be completed if the

number of ready state application tasks is less than a predetermined value and managing a

virtual worst case execution time, which is shorter than a worst case execution time, if the number of ready state application tasks is greater than the predetermined value [col. 6 lines 4-8 and col. 8 lines 58-65].

Although not explicitly taught, processors that are responsible for executing the tasks, process a plurality of instructions which together makeup the given task. Therefore, it is inherent in order for a processor to execute a particular task, that task must first be broken up into and presented to the processor as individual instructions to be processed. In addition, by Matsu reducing a processor frequency if the number of ready state application tasks is below a predetermined value it should be apparent that the execution time for an instruction would be greater during the period of reduced frequency in comparison to that when the frequency is not reduced (i.e. the number of ready state application tasks are greater than the predetermined value).

Lastly, even though Matsu teaches managing the execution of tasks, it is not explicitly taught to have a timer for measuring an execution time of an application task to be executed by a processor. Soga teaches managing task execution wherein the tasks are managed by timing the execution time with a timer [abstract, col. 1 lines 63-68 and col. 3 lines 57-68]. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the teachings of Soga into the Matsu system because it provides a rational means to share execution time between tasks so that no single task can monopolize all of the execution time from the processor.

Allowable Subject Matter

19.   Claims 1-8 are allowed.

20.   Claims 10-12 and 14-15 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

Conclusion

21.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Mark Connolly whose telephone number is (571) 272-3666. The

examiner can normally be reached on M-F 8AM-5PM (except every first Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Thomas C. Lee can be reached on (571) 272-3667. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

<div style="text-align: right">

Mark Connolly
Examiner
Art Unit 2115

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mc
May 30, 2006

CHUN CAO
PRIMARY EXAMINER